

recesses in one of said inserts, said bar being longer than the diameter of the vessel in which said bar is received.

### **REMARKS**

The undersigned and Dr. Harold Weller III wish to thank Examiner Elizabeth Quan and Examiner Arlen Soderquist for the courtesies shown to us during the interview which took place on February 4, 2004.

During that interview, the rejection under 35 U.S.C. 112, first paragraph, with respect to the dimensions of the reaction vessels, was discussed. In particular, it was explained that the rejection was based upon the fact that these vessel sizes set forth in the specification did not specify whether it was the diameter or the radius of the vessel which was being referred to. In response, it was noted that the convention in the industry is that vessel sizes are specified in terms of the vessel diameter without an explicit reference to the diameter, and with that convention in mind, one skilled in the art would understand the specification as referring to the vessel diameter, not to the vessel radius, absent any additional explanation in that regard.

Further, it was pointed out that the Sargent-Welch reference follows that convention when specifying the sizes of the test tubes that may be received into the test tube racks sold for use with the shaking machine of that reference.

In any case, applicants have now set forth the convention followed in the specification with respect to the designation of the reaction vessel sizes, eliminating any possible ambiguity in that regard.

The rejection of Claim 86 on the basis of the art cited in the last Office Action was also discussed during the interview. It was agreed that applicants would amend Claim 86 to include

the sealing plate and that such an amendment, pending further search by Examiner Quan, may obviate the current rejections under 35 USC 102 and 35 USC 103. Applicants have complied with that agreement and amended Claim 86 herein to include the sealing plate.

It was further agreed at the interview that applicants would file a Request for Continued Examination so that Examiner Quan could perform any additional searching deemed necessary. Applicants have herein complied with that, as well.

In the Office Action dated November 17, 2003, Claims 91, 93, 95, 98 and 103 had been rejected under 35 U.S.C. 112, first paragraph; Claims 86-88, 90-97, 101-105 and 111-118 had been rejected under 35 U.S.C. 102 (b) as anticipated by Sargent-Welch Catalog 130; Claims 86, 89, 90, 92, 94, 97, 105 and 119 had been rejected under 35 U.S.C. 102 (e) as anticipated by Kearsley; Claims 86, 89, 102-105 had been rejected under 35 U.S.C. 103 (a) as being unpatentable over Van Praet in view of Fawcett. The remaining claims had been rejected under 35 U.S.C. 103(a) as unpatentable in view of one or more of the above noted references, alone or in combination with secondary references.

With regard to the rejections under 35 U.S.C. 102, Claim 86, as amended herein, states, in the preamble, that the claimed apparatus is for performing chemical reactions in a plurality of vessels in conjunction with a liquid handler having a plurality of individual liquid dispensing means arranged in a pattern. The body of the claim now requires means for sealing the open mouths of the reaction vessels. The sealing means is mounted above the base, between the reaction vessels and the liquid handler. The sealing means includes a sealing plate with a plurality of sealable openings aligned with different ones of the reaction vessels such that liquid from the dispensing means can be dispensed through the sealing plate and into the reaction vessels. The body of the claim further requires first and second inserts alternatively insertable

into the base, each insert having a different array of vessel receiving recesses. The body of the claim goes on to require that each recess, in each insert, align with a different one of the dispensing means of the liquid handler, when that insert is received in the base.

The relationship between the dispensers in the liquid handler, the openings in the sealing plate and the reaction vessels in the vessel-receiving recesses in each of the interchangeable inserts described in amended Claim 86 permits several inserts, each with different number and size vessel-receiving recesses, to be used in a single reactor, with a standard automated liquid handler. The use of a single reactor represents a great cost savings over prior art systems. Previously, different reactors were required, one for each different insert array. Each reactor is quite costly.

The Examiner correctly states that the liquid handler is not an element of the claim. This is as it should be because the liquid handler is a standard component, not part of applicants' invention. However, the fact that the liquid handler is not an element of the claim does not mean that it can be ignored in construing the claim.

The caselaw clearly requires that wording in the preamble be considered a structural limitation when those words give "life and meaning" to the claim, rather than merely state the use or purpose of the claimed apparatus or method. The following quotations from four recent Federal Circuit case illustrate this well settled principle of claim construction.

In Rowe v. Dror, 112 F. 3d 473 (Fed. Cir. 1997) the Court, at page 478, discussed the weight to be accorded the wording in the preamble of a claim. It held that the entire patent must be considered to determine the inventor's intentions in that regard:

"[A] claim preamble has the import that the claim as a whole suggests for it." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed.Cir.1995). Where a patentee uses the claim preamble to recite structural limitations of his claimed invention, the PTO and courts give effect to that usage. See id.; Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257, 9 USPQ2d 1962,

1966 (Fed.Cir.1989). Conversely, where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation. See Bell Communications, 55 F.3d at 620; Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 88 USPQ 478, 481 (1951) Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 88 USPQ 478, 481, 1951).

The determination of whether preamble recitations are structural limitations or mere statements of purpose or use "can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." Corning Glass Works, 868 F.2d at 1257. The inquiry involves examination of the entire patent record to determine what invention the patentee intended to define and protect. See Bell Communications, 55 F.3d at 621 (looking to patent specification to determine whether claimed invention includes preamble recitations); In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed.Cir.1994) (examining "patent as a whole"); Vaupel Textilmaschinen KG v. Meccanica Euro Italia SPA, 944 F.2d 870, 880, 20 USPQ2d 1045, 1053 (Fed.Cir.1991) (looking to claims, specification, and drawings); Gerber Garment Tech., Inc. v. Lectra Sys., Inc., 916 F.2d 683, 689, 16 USPQ2d 1436, 1441 (Fed.Cir.1990) (noting that preamble recitations provided antecedent basis for terms used in body of claim); Corning Glass Works, 868 F.2d at 1257 (considering the specification's statement of the problem with the prior art); Kropa, 187 F.2d at 152 (noting that preamble sets out distinct relationship among remaining claim elements).

Similarly, in Pitney Bowes, Inc. v. Hewlett-Packard Co. 192 F. 3d 1298 (Fed. Cir. 1999), at page 1305, the Federal Court stated that the determination as to how to construe the wording in the preamble revolves around whether the preamble gives "life, meaning vitality" to the claim:

Although our initial discussion has focused on the preamble, as opposed to the remainder of the claim language, this does not undercut its significance. "[A] claim preamble has the import that the claim as a whole suggests for it." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed.Cir.1995). If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is "necessary to give life, meaning, and vitality" to the claim, then the claim preamble should be construed as if in the balance of the claim. Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 88 USPQ 478, 480-81 (CCPA 1951); see also Rowe v. Dror, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed.Cir.1997); Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed.Cir.1989). Indeed, when discussing the "claim" in such a circumstance, there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim, for only together do they comprise the "claim". If, however, the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation. See Rowe, 112 F.3d at 478, 42 USPQ2d at 1553; Corning Glass, 868 F.2d at 1257, 9 USPQ2d at 1966; Kropa, 187 F.2d at 152, 88 USPQ at 480-81. Here, the preamble is "necessary to give life, meaning, and vitality" to the claim. Kropa, 187 F.2d at 152, 88 USPQ at 480-81. The preamble statement that the patent claims a method of or apparatus for "producing on a photoreceptor an image of generated shapes made up of spots" is not merely a statement describing the invention's intended field of use. Instead, that statement is intimately meshed with the ensuing language in the claim. For example, both independent claims conclude with the clause "whereby the appearance of smoothed edges are given to the generated shapes". Because this is the first appearance in the claim body of the term "generated

shapes", the term can only be understood in the context of the preamble statement "producing on a photoreceptor an image of generated shapes made up of spots". Similarly, the term "spots" is initially used in the preamble to refer to the elements that make up the image of generated shapes that are produced on the photoreceptor. The term "spots" then appears twice in each of the independent claims. That the claim term "spots" refers to the components that together make up the images of generated shapes on the photoreceptor is only discernible from the claim preamble. In such a case, it is essential that the court charged with claim construction construe the preamble and the remainder of the claim, as we have done here, as one unified and internally consistent recitation of the claimed invention.

In the Rowe case, the Court referred to the decision in Corning Glass Works v. Sumitomo Electric U.S.A., Inc. 868 F.2d 1251 (Fed. Cir. 1989). In Corning, the Court discussed how the specification enters into this determination:

No litmus test can be given with respect to when the introductory words of a claim, the preamble, constitute a statement of purpose for a device or are, in themselves, additional structural limitations of a claim. To say that a preamble is a limitation if it gives "meaning to the claim" may merely state the problem rather than lead one to the answer. The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim. Here, the '915 specification makes clear that the inventors were working on the particular problem of an effective optical communication system not on general improvements in conventional optical fibers. To read the claim in light of the specification indiscriminately to cover all types of optical fibers would be divorced from reality. The invention is restricted to those fibers that work as waveguides as defined in the specification, which is not true with respect to fibers constructed with the limitations of paragraphs (a) and (b) only. Thus, we conclude that the claim preamble in this instance does not merely state a purpose or intended use for the claimed structure. See Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Rather, those words do give "life and meaning" and provide further positive limitations to the invention claimed. See Loctite, 781 F.2d at 866, 228 USPQ at 92; Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 896, 221 USPQ 669, 675 (Fed.Cir.), cert. denied, 469 U.S. 857, 105 S.Ct. 187, 83 L.Ed.2d 120 (1984). Thus, contrary to Sumitomo's argument, the core and cladding limitations specifically set out in paragraphs (a) and (b) are not the only limitations of the claim. See, e.g., Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 677-78, 7 USPQ2d 1315, 1317 (Fed.Cir.1988) (affirming district court's use of claim preamble as a limitation). The claim requires, in addition, the particular structural relationship defined in the specification for the core and cladding to function as an optical waveguide.

In this regard, see also General Electric Co. v. Nintendo Co., Ltd. 179 F. 3d 1350, 1361 (Fed. Cir. 1999):

The threshold question here is whether a bit map display device is a limitation on Claim 1. The only reference made in Claim 1 to a bit map display device is in the preamble: "A system for displaying a pattern on a raster scanned display device by mapping bits from a display location in a memory associated with a computer onto the raster." '125 pat., col. 8, ll. 25- 28. We must, thus, determine whether the preamble breathes life and meaning into the claim, and is incorporated by reference because of language appearing later in the claim, making it a limitation of the claim. See In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed.Cir.1994) ("Terms appearing in a preamble may be deemed limitations of a claim when they 'give meaning to the claim and properly define the invention.' ") (quoting Gerber Garment Technology, Inc. v. Lectra Systems, Inc., 916 F.2d 683, 688, 16 USPQ2d 1436, 1441

(Fed.Cir.1990)).

No litmus test can be given with respect to when the introductory words of a claim, the preamble, constitute a statement of purpose for a device or are, in themselves, additional structural limitations of a claim. To say that a preamble is a limitation if it gives "meaning to the claim" may merely state the problem rather than lead one to the answer. The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim. Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed.Cir.1989). Here, the '125 specification makes clear that the inventors were working on the particular problem of displaying binary data on a raster scan display device and not general improvements to all display systems. In light of the specification, to read the claim indiscriminately to cover all types of display systems would be divorced from reality. The invention so described is restricted to those display devices that work by displaying bits, which is not true with respect to all display systems recited in just the body of the claim. "Thus, we conclude that the claim preamble in this instance does not merely state a purpose or intended use for the claimed structure. Rather, those words do give 'life and meaning' and provide further positive limitations to the invention claimed." Id.

In view of the above, it is clear that one must construe amended Claim 86 to include the limitation that the vessel-receiving recesses in each insert recess array be aligned with a different one of the liquid dispersing means of the liquid handler, when the insert is received in the base, as being an essential part of the claim. This is because that limitation is necessary to give life, meaning and vitality to the claim. The liquid handler is recited in the preamble not simply to recite the purpose or intended use of the invention. It sets out an important relationship with the other elements in the claim, specifically, that the locations of the sealable openings in the sealing plate and of the recesses in each of the interchangeable inserts be aligned with different ones of the liquid dispensers in the liquid handler. That relationship is at the very heart of applicants' invention: the ability to use a single reactor with inserts having different size and arrangements of vessel-receiving recesses.

Given that the relationship between the liquid dispensers of the liquid handler, the sealable openings in the sealing plate and the reaction vessels in the vessel-receiving recesses of the interchangeable inserts is important to the claimed invention, that limitation must be met by the prior art cited in order for that prior art to anticipate the claims or render them obvious. An analysis of the art cited shows that none of the references, considered individually or in

combination, teach or suggest an apparatus with this relationship, as recited in amended Claim 86.

The Sargent-Welsh catalog teaches a shaking machine with a recess into which any one of four test tube racks, with different numbers of positions for different size test tubes, could be received. Although there is no teaching that the shaking machine could be used with a liquid handler with dispensing means arranged in a pattern, let us assume, for the purposes of this argument, that it could.

Clearly, this reference does not teach any means for sealing the open mouths of the test tubes. It does not teach such means situated above the base, between the liquid handler and the test tubes. It does not teach a sealing plate with sealable openings aligned with the reaction vessels.

Further, it is apparent from the drawings of the two racks, and from the fact that the racks must have the same footprint to fit into the shaker but have different arrays of recesses, that each recess in each array cannot align with a different one of the liquid handler dispensers.

For example, the rack shown on the left of the catalog has an array of 4x10 recess. The rack shown on the right has an array of 9x10 recesses. Since the recesses are uniformly distributed in each rack, it would not be possible to have a liquid handler with a pattern of dispensers that align with every recess in each array. Moreover, from the fact that the recesses in the rack shown at the left are rectangular in shape, it is clear that such a rack could not hold test tubes with a circular cross-section in positions that would be sufficiently fixed to receive liquids from a liquid handler, in any case.

We also note that in this catalog, as is customary in every glassware catalog of which we are aware, the test tube sizes are given for the diameter of the test tube, in millimeters, not for the

height. This is the manner in which the sizes of the vessels are set forth in the present specification and is in accordance with the convention in the industry.

It is clear that this reference does not teach the applicants sealing plate or the relationship between the vessel positions and the liquid dispensers defined in applicants' amended Claim 86. Hence, it does not anticipate the claims.

The same is true of the Kearsley patent. That patent teaches an evaporator capable of receiving sample supply plates of different heights through the use of an adapter. However, Kearsley does not teach sealing means, including a sealing plate with sealable openings aligned with the reaction vessels. In addition, in each case disclosed in this patent, the supply plates (standard micro-plates or deep well micro-plates) each have 96 wells, arranged in the identical pattern. There is no teaching or suggestion that the plates with recesses arranged in different arrays should or could be used.

In Kearsley, the idea of using a sealing plate with sealable openings aligned with the reaction vessels or inserts with recesses arranged in different patterns is not contemplated. Further, the idea of using the evaporator having the claimed sealing plate or inserts, designed for use with a liquid handler having a particular dispensing pattern is not considered.

In that regard, while the Examiner attempts to equate wells of different heights with recesses arranged in different arrays, such an argument is contrary to the teachings of the reference and hence is totally unsupported. This patent makes it very clear, both in specification and in the drawings, that the plates have recesses arranged in identical arrays.

The Van Praet patent also does not teach the sealing plate with sealable openings aligned with the reaction vessels or the relationship between the vessel positions and the liquid dispensers. That patent teaches an incubator capable of receiving a micro-titer plate. The cover



14 is provided with holes 14 that will allow needles from a pipetting automate to access the wells in the plate. However, those holes are not taught as being sealable. Further, the number of recesses in the reaction vessel containing plate is not disclosed. Nor is there any teaching of using reaction vessel containing plates with different recess arrays.

It is argued that Van Praet does not exclude the use of reaction vessel containing plates with different arrays. While that may true, that is not enough to suggest doing so. Van Praet also does not exclude the use of elephants in the apparatus. On that basis, could one reasonably argue that Van Praet teaches putting elephants in his incubator?

Fawcett is cited in combination with Van Praet. Fawcett, according to the Examiner, teaches that inserts with 96 wells are being superseded by inserts with the same footprint, with larger numbers of wells. Fawcett is a plate locator for positioning and holding sample plates on the work bed of a liquid handler such that the probe holder can move over the plate and dispense into the wells.

Fawcett does not teach the use of a sealing plate with sealable openings aligned with the reaction vessels. Further, in Fawcett, as is clear from the specification, (Col. 3, line 64 to Col. 4, line 11) and Figure 2, each of the wells 66 of plate 32 do not align with one of the needles 34 of probe 26. That is why the probe must be moved several times to fill all of the wells. It is apparent that Fawcett could not operate through a sealing plate and is not designed to do so.

Accordingly, neither Van Praet nor Fawcett teaches as sealing plate with sealable openings aligned with the reaction vessels or the idea of having each recess of each one of two interchangeable inserts align with a different one of the dispensing means in the liquid handler. Neither patent addresses that issue at all.

Moreover, the combination of those references is inappropriate because there is no teaching, motivation or suggestion in either reference to select and combine the references as the Examiner proposes. See *In re Lee*, 61 USPQ 2d 1430, 1433 (Fed. Cir. 2002) wherein the Court stated:

“The factual inquiry whether to combine references must be thorough and searching.” *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120m 1125-25m 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching, or motivation to combine the prior art references is an ‘essential component of an obviousness holding’”) (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (“Our case law makes clear that the best defense against the subtle but powerful attraction of a highlight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references”); *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (“teachings of references can be combined only if there is some suggestion or incentive to do so”) (emphasis in original) (quoting *ACS Hosp. Sys. Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)).

The need for specificity pervades this authority. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453m 1459 (Fed. Cir. 1998) (“even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.”); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references”).

There is nothing in either *Van Praet* or *Fawcett* that would provide any teaching, suggestion or motivation to combine these references as proposed. Further, since neither reference teaches interchangeable inserts in which each recess aligns with a different dispensing

means, even if those references could be combined, the result would not be applicants' claimed invention.

All of the other rejections under 35 U.S.C. 103 are based primarily on one or more of the references discussed above. Since those references cannot meet the limitations of Claim 86, and all of the other claims are dependent upon Claim 86, those rejections cannot be sustained for the same reasons as set forth above.

With respect to the double patenting rejection relating to Claims 115 and 116, Claim 116 has been cancelled and the dependency of Claim 117 has been changed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert L. Epstein', is written over a horizontal line.

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